

REMARKS

This Amendment and Response is made in reply to the Office Action dated October 6, 2005, in which the Examiner:

rejected claims 1-13 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,975,032 to Iwata.

Applicant respectfully traverses these rejections below. Claims 1, 2, 4, 5 and 7-13 are amended, and new claims 14 and 15 are added, leaving claims 1-15 pending upon entrance of the present Amendment. Claims 1 and 10 are independent claims.

Regarding the rejection of claim 1 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,975,032 to Iwata, Applicant's amended claim 1 recites, in part, a cylinder head wherein the cylinder head at least partially defines a water jacket at least partially surrounding at least two ports, and at least one fuel injection nozzle and at least one cooling water pipe is arranged inside the water jacket such that a plurality of outlet openings are respectively placed in a position around the at least one fuel injection nozzle and in a position between at least two of the at least two ports.

Iwata does not teach or suggest the claim 1 recitations. For instance, Iwata does not teach or suggest a cylinder head having a cooling water pipe inside. Instead, Iwata teaches:

The coolant passes through the exhaust manifold cooling jacket, and then into one or more passages or jackets 107 (see FIG. 7) within the cylinder block 52 and head 56 for cooling the main body of the engine 22. (Col. 5, lines 38-40.)

Return passage or pipe 110, cited by the Examiner (Office Action, p. 2) is not inside either the cylinder head 54 or in passages or jackets 107, but instead receives coolant that has already left, and is thus outside, the cylinder block 52 and head 54. (See col. 5, lines 44-49.)

Additionally, Iwata does not teach or suggest at least one cooling water pipe is arranged inside a water jacket such that a plurality of outlet openings are respectively placed in a position around the at least one fuel injection nozzle and in a position between at least two of the at least two ports. Instead, Iwata teaches:

These passages [107] may comprise individual cooling passages and/or cooling jackets surrounding the cylinders 54, as well known in the art. (Col. 5, lines 40-43.)

Thus, Iwata does not teach or suggest that passages or jackets 107 are respectively placed in a position around the at least one fuel injection nozzle and in a position between at least two of the at least two ports, much less that a cooling water pipe *inside* the jackets or passages 107 is positioned in such a manner, as Applicant's claim 1 recites.

Furthermore, a prima facie case of obviousness further requires that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP 2143. The Examiner has stated no suggestion or motivation to modify Iwata so as to teach or suggest the claim 1 recitations.

Accordingly, Applicant respectfully submits that claim 1 is allowable over Iwata for at least the reasons stated above.

Claims 2-9 depend, directly or indirectly, from an allowable claim 1. Accordingly, Applicant respectfully requests allowance of claims 2-9 for at least the reasons stated in connection with claim 1.

Regarding the rejection of claim 10 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,975,032 to Iwata, Applicant's amended claim 10 recites, in part, a cylinder head wherein the cylinder head at least partially defines a water jacket at least partially surrounding four ports and at least one fuel injection nozzle, and at least one cooling water pipe is arranged inside the water jacket and the cooling water pipe comprises one section extending from one side of the cylinder head to a position near the fuel injection nozzle through a position between two ports among the four ports, and another section extending from another side of the cylinder head to a position near the fuel injection nozzle through a position between another two ports among the four ports.

The Examiner has not stated in what manner Iwata teaches or suggests the claim 10 recitations, nor what motivation, if any, exists to modify Iwata. However, Applicant notes that claim 10 recites a cooling water pipe having outlet openings respectively placed in a position around a fuel injection nozzle and in a position between the ports, similarly to Applicant's claim 1. As discussed in connection with claim 1, Iwata does not teach or suggest these recitations.

Accordingly, Applicant respectfully submits that claim 10 is allowable over Iwata for at least the reasons stated above.

Claims 11-13 depend, directly or indirectly, from an allowable claim 10. Accordingly, Applicant respectfully requests allowance of claims 11-13 for at least the reasons stated in connection with claim 10.

Applicant respectfully submits that nothing in the current amendment constitutes new matter. Amendments to the Specification were made to remove references to the claims, in accordance with U.S. practice. Amendments to the claims 1 and 10 are fully supported by the Specification and Drawings (see at least paragraphs [0029], [0031] and [0032], and Figure 1). Amendments to claims 2, 4, 5, 7-9 and 11-13 are minor amendments made for conformity to U.S. practice.

Support for new claims 14 and 15 can be found at least in paragraphs [0029] and [0032] of the Specification. New claims 14 and 15 depend directly from allowable claims 1 and 10, respectively, and are therefore also allowable for at least the reasons stated in connection with claims 1 and 10. Additionally, Applicant respectfully submits that Iwata does not teach or suggest that any part of return passage or pipe 110 is integral with the cylinder head 54, unlike the cooling water pipe recited by new claims 14 and 15.

As Applicant has traversed each and every rejection made by the Examiner, it is hereby respectfully requested that the Examiner withdraw the rejections of claims 1-13, and pass claims 1-15 to issue.

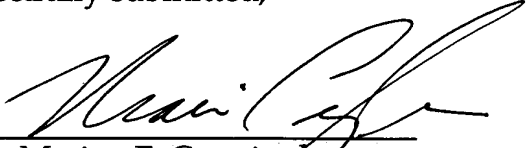
Applicant hereby petitions for a one-month extension of time in order to file an Amendment and Response on the above-identified application. The fee of \$120.00 required under 37 CFR 1.17(a) is enclosed.

If any additional extension of time for the accompanying response is required, applicant requests that this paper be considered a petition therefor.

Serial No. 10/510,558
Office Action dated: 10/06/2005
Response to Office Action dated: 01/17/06

The Commissioner is authorized to charge any fees under 37 CFR
1.17(a) to (d), which may be required to Deposit Account No. 13-0235.

Respectfully submitted,

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